

REMARKS

Claims 1 and 3-12 are pending in this application. By this Amendment, claim 1 is amended to more accurately reflect the subject matter of the present claims. Claims 3-7 are amended to correct typographical errors. Claims 8 and 9 are added and are supported by page 4, lines 21-22 of the specification. Claims 10 and 11 are added and are supported by page 4, lines 19-20 of the specification. Claim 12 is added and is supported by page 11, lines 9-14 of the specification. No new matter is added by this Amendment.

I. Interview

The courtesies extended to Applicants' representatives by Examiner Siefke and Examiner Ryan at the interview held May 29, 2008, are appreciated. The reasons presented at the interview as warranting favorable action are incorporated into the remarks below, which constitute Applicants' record of the interview.

II. Rejection Under 35 U.S.C. §103(a)

Claims 1 and 3-4 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,512,168 ("Fetner") in view of U.S. Patent No. 5,721,142 ("Klemm"). This rejection is respectfully traversed.

The Patent Office admits that Fetner does not describe raising or lowering the temperature of the cartridge by flowing a heated or cooled liquid through the cartridge as required in claim 1. The Patent Office introduces Klemm as allegedly describing this feature. The Patent Office alleges that Klemm describes a method for monitoring mammalian reproductive cycles by observing the variations in the amount of one or more low molecular weight compounds during the mammal's reproductive cycle. See Office Action, page 3 (citing Klemm, col. 1, lines 13-17 and col. 3, lines 36-40.) Furthermore, the Patent Office alleges that Klemm's method for monitoring mammalian reproductive cycles includes (1) reacting a supernatant of the sample and DNPH solution, and (2) heating the sample for 10

minutes to initiate the reaction and subsequently filtering the sample into a solid phase extraction cartridge. See Office Action, page 3 (citing Klemm, Example 4, col. 12, lines 47-55).

A. Klemm

Example 4 of Klemm discloses that the sample is (1) heated at 60°C for 10 minutes to promote the reaction between the supernatant of the sample and dinitrophenylhydrazone ("DNPH") solution, (2) filtered and (3) slowly loaded into a solid-phase extraction cartridge. See Klemm, col. 12, lines 50-53.

Klemm fails to disclose (1) the timeframe for the filtering and slow addition steps and (2) the temperature of the sample upon loading into the solid-phase extraction cartridge. Klemm's disclosure to heat the sample to 60°C for 10 minutes as a means to promote the reaction does not describe the use of the previously heated sample to heat the downstream solid-phase extraction cartridge. Klemm also does not describe that the 60°C reaction temperature of the liquid is maintained during the subsequent filtering and slow loading steps, and thus does not describe using the liquid at 60°C when introduced into the solid phase extraction cartridge. In reading Klemm, one of ordinary skill in the art would not have been provided any reason or rationale to have used the sample as a means to adjust the temperature of the solid-phase extraction cartridge.

Even further, Klemm discloses that the sample is added slowly to the solid-phase extraction cartridge, after filtering. The filtering and slow addition steps are more reasonably presumed to result in a substantial drop in the temperature of the sample (e.g., to room temperature), even if these steps are done immediately following the reaction. That is, depending on (1) the amount of time the filtering process recited in Example 4 requires, (2) the sample size and (3) the rate of reaction and (4) the surrounding temperature, the temperature of the sample in Example 4 of Klemm will almost certainly decrease, perhaps to

room temperature. As such, Klemm's disclosure of heating a sample to 60°C for 10 minutes described in Example 4 cannot reasonably be presumed to provide any heat from the sample that would adjust the temperature of the solid-phase extraction cartridge. Klemm thus does not describe adjusting the temperature of the solid-phase extraction cartridge with the sample, or that such could be beneficial when utilizing a solid-phase extraction cartridge in the method recited in claim 1.

For the foregoing reasons, Klemm would not have provided one of ordinary skill in the art with any reason or rationale to have modified the description of Fetner to have derived the process of claim 1.

B. Interview and Amended Claim 1

During the interview, Examiner Siefke alleged that Klemm's disclosure in Example 4 of heating the sorbent prior to the sorbent being introduced into a solid phase extraction would have resulted in at least a negligible amount of heating of the cartridge. Examiner Siefke suggested that amending claim 1 to exclude negligible heating may overcome the present rejection.

In view of Examiner Siefke's suggestion, Applicants have amended claim 1 to recite a solid phase extraction process for extracting an analyte from a sample comprising one or more of the following steps: a) conditioning a sorbent in a cartridge by passing a liquid suitable for conditioning through the cartridge; b) applying a sample that contains the analyte to the sorbent by passing a liquid which contains the sample through the cartridge; c) washing the sorbent by passing a wash liquid through the cartridge; d) eluting the analyte from the sorbent by passing an elution liquid through the cartridge, wherein the temperature of the cartridge is raised or lowered at a rate greater than 5°C/min during one or more of the steps a) to d), and wherein the temperature of the cartridge is raised or lowered at a rate greater than 5°C/min by

heating or cooling one or more of the liquids used in step a) to d) before feeding to the cartridge.

Fetner and Klemm, taken singly or in combination, do not describe, in any manner, heating or cooling one or more of the liquids used in steps a) to d) before feeding the liquids to the cartridge so as to adjust the temperature of the cartridge at a rate greater than 5°C/min, as recited in claim 1. Moreover, nowhere do Fetner and Klemm, taken singly or in combination, describe passing a heated or cooled liquid through a cartridge to raise or lower, respectively, the temperature of the cartridge at a rate greater than 5°C/min.

Any negligible heating incidental to the process of Example 4 of Klemm would not have led one to have used a liquid to raise/lower the temperature of a solid-phase extraction cartridge at the much more substantial rate of 5°C/min.

Applicants thus again submit that Klemm does not provide one of ordinary skill in the art with any reason or rationale to use the liquid that passes through the cartridge as a means to raise or lower the temperature of the cartridge at the recited rate as required in the present claims. Accordingly, even if the descriptions of Fetner and Klemm were to have been combined, such combined descriptions would not have led one to the process of claim 1.

C. Claim 9

Furthermore, for the same reasons as above, Klemm or Fetner clearly do not describe raising or lowering the temperature of the cartridge at rate greater than 50°C/min during one or more of the steps a) to d), as recited in dependent claim 9.

D. Claims 10 and 11

Applicants submit that neither Klemm nor Fetner describe that the heating or cooling of the one or more liquids used in steps a) to d) comprises heating with the use of a heating device having a heat capacity sufficient to heat the one or more liquids used in steps a) to d) from 20°C to 100°C with a flow rate of 1 mL/min of liquid in 10 seconds or less or 5 seconds or less, as recited in new claims 10 and 11.

E. Claim 12

Applicants submit that Klemm and Fetner do not describe the use of an injection pump for the liquid with a capacity that allows for the injection pump to take the entire amount of liquid required for one of steps a) - d) and inject the liquid into a line system with an uninterrupted delivery stroke as recited in new claim 12.

F. Conclusion

For the foregoing amendments and arguments, withdrawal of the rejection is respectfully requested.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1 and 3-12 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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